# ENTOMOLOGICAL NEWS

AND

## PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

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## A New Omus (Coleop.).


By F. E. BLAISDELL, SR., and L. R. REYNOLDS, San Francisco, California.


(Plate VI)

A recent collecting trip to Humboldt County, California, brought to light several very interesting facts and what is believed to be a new species of *Omus,* which may be defined as follows:

**Omus cupreonitens,** n. sp.

Elongate, glabrous, deep black and shining; lustre varying from cupreous to glossy black.

*Head* moderate, as wide as the pronotum, or slightly narrower; eyes feebly prominent; interocular region adjoining the clypeal base prominent and convex, polished, very sparsely punctulate and feebly rugulose at its periphery, and defined laterally by distinct frontal impressions; remaining frontal region irregularly and moderately coarsely rugulose, the upper part of each frontal impression exhibiting a distinct vortiginous spot when viewed vertically from above, the adjacent rugulae being concentrically arranged; supraorbital rugulae parallel;

clypeus usually glabrous or with a few obsolete rugulae laterally; labrum almost truncate to feebly lobed at middle, the angles being sub-prominent and narrowly rounded; mouth parts nigropiceous; antennae reaching beyond the prothoracic base and moderate in stoutness.

*Pronotum* a little wider than long, sides feebly arcuate anteriorly, thence almost straight and converging to the base, bead fine and not quite entire at base, not interrupting the sub-marginal groove, the propleura visible posteriorly when viewed from above; disc convex, feebly so in the central area, strongly so laterally and apically, less so before the basal angles, sub-apical and sub-basal transverse impressions distinct, median longitudinal line distinct and more or less impressed and quite obsolete beyond the transverse impressions, surface vermiculately rugulose, rugulae in the apical area somewhat longitudinal and somewhat obsolete; apex transverse; base transverse and very feebly bisinuate.

*Propleura* feebly and more or less transversely rugulose. Lateral plates of the prosternum obsoletely rugulose, the rugulae crinkly and transverse. Prosternum glabrous.

*Elytra* oval, to slightly oblong oval, about one-third longer than wide, sides evenly arcuate and sub-parallel in the middle third; humeri not angulate, broadly rounded or obsolete; sides more or less oblique in apical third and arcuately converging to the obtusely rounded apex, marginal bead rather fine; disc moderately convex, irregularly punctuate, punctures moderate and sub-equal throughout, well separated and equally distributed; nine to eleven setigerous punctures more or less impressed and visible to the naked eye, surface microscopically reticulate.

*Epipleura* glabrous at base, elsewhere obsoletely crinkled.

*Meso-* and *metasterna* glabrous shining. Mesothoracic side plates obsoletely rugulo-strigulose; metathoracic side plates more or less longitudinally strigulo-rugulose.

*Femora* sparsely and feebly sculptured.

Abdominal surface glabrous and shining.

*Male.* (Fig. 1.)—Fifth ventral segment deeply emarginate at middle, sinus evenly rounded at the bottom, as wide as deep, depth equal to about one-third of the segment, lateral lobes evenly rounded from within and at apex. First three joints of the metatarsi equal to the length of a metafemur. In the type (Fig. 1) the humeri are intermediate between those of Fig. 3 and Fig. 2 (♀ Type).

*Female.* (Fig. 2)—Fifth ventral segment ogival at apex—sides quite straight and converging to form the very narrowly rounded apex.

*Measurements*: ♂. Total length, 15.0 mm.; of elytra, 7.75 mm.; width, 4.5 mm. Length of pronotum, 3.0 mm.; width, 3.5 mm.

♀. Total length, 15.5 mm.; of elytra, 8.5 mm.; width, 5.0 mm. Length of pronotum, 3.0 mm.; width, 3.6 mm.

*Habitat.*—Humboldt County (shore of Humboldt Bay near Arcata), California. Collectors, Blaisdell and Reynolds. Number of specimens studied 150.

*Types* in the collection of F. E. Blaisdell. Co-types in both the authors' collections.

It requires considerable courage to describe a new *Omus,* when so many are being described and founded on what are ostensibly intraspecific variations of known species.

The unique habitat of *cupreonitens* makes it of especial interest. It appears that general habitus when studied in a large series is a more reliable criterion than details, which vary in degree to such an extent in intraspecific forms as to be truly misleading.

*Diagnostic Characters. Cupreonitens* has a form more like *californicus* than any other, while the elytral sculpturing is that of *audouini;* the pronotal rugulosity is not like that observed in *californicus,* but less dense and coarser. In coloration it is said to resemble *vandykei.*

The type of *vandykei* was found by Dr. Walter Horn in the Rivers collection. Prof. Rivers had labeled it *submetallicus,* and it is the only known specimen, having been collected in middle Oregon. Mr. F. W. Nunenmacher has collected other specimens in Humboldt County, that have been referred to this species, but we believe doubtfully. There is before us a specimen collected at Dyerville, central Humboldt County, and in the Fuchs collection; it was obtained from Essig, who received it from Dr. Horn, if it is correctly labeled. It is not the same as *cupreonitens. Californicus* and *cupreonitens* are coastal species, and in all probability have the same ancestry. *Vandykei* from central Oregon is related to *audouini, oregonensis* and *humeroplanatus,* the latter being abundant in Humboldt County (Green Point Ranch).

We do not propose to study species of *Omus* from *uniques* or from series of ten or twenty, but from series of fifty and upward. Each series must be collected in a single geographical area.

Details of the Habitat of cupreonitens.

The series constituting the present study was taken on the clay banks of Humboldt Bay, and separated by a dike and redeemed marshes from the main land. The species lives in the transitional area between high water mark and the dike above mentioned. The highest elevation of the transitional area is not over five feet above sea level and consists of the irregular clay dumpings of a dredger, the inland side of which is overgrown with swamp grass, millefoil and a few weeds. The first specimens were taken from beneath logs and boards left by high tide. *Trechus ovipennis, Anisodactylus californicus* and *Bembidia* were their companions. Many specimens were caught running over the bare clay banks, both when the sun was shining and when the weather was cloudy. They were taken in the greatest numbers on the intermediate and drier levels, from beneath boards and by digging the matted grass apart. Larval burrows were everywhere abundant on the inland side of the clay dumps. Twelve larvae were dug out of a piece of bank twelve inches square. The larvae are to be sent with others of the Blaisdell collection to the University of Illinois, where they will be studied. It is hoped that some definite relationships will be determined in this way.

Let it be carefully noted that the present species is founded upon the study of a series of one hundred and fifty specimens. Such a series shows the extremes of the specific aggregate. All the specimens were taken in the same area, which was about one-fourth of a mile long and twenty-five feet wide and as described above. The variations included in the series are analogous to those exhibited by similarly large series of other species taken in any *one geographical area.*

A species studied in this way can have its limitations more understandingly worked out. The authors' collections include large series of *californicus, sequoiarum, edwardsii, blaisdelli* and *ambiguus;* some of the series of the same species are from different geographical regions or areas and exhibit identical variations, with some one particular intraspecific phase predominating. These series show beyond all cavil that many of

the recently described species are nothing more or less than the extremes, sports or aberrations belonging to well-known specific aggregates. When the last word shall have been spoken—if that occurs before evolution has had time to act—probably two-thirds of the fifty-two described species and varieties will fall into synonymy as *forms* (intraspecific variations); the remaining one-third will be species with their subspecies or races.

Before drawing this paper to an end it will be worth while—and helpful to the susceptible—to study some of the intraspecific variations or forms.

Measurements of the Extremes of cupreonitens.

*Smallest Male.* Total length, 14.0 mm.; of elytra, 8.0 mm.; width, 4.3 mm. Length of pronotum, 3.0 mm.; width, 3.2 mm.

*Largest Male.* See type.

*Smallest Female.* Total length, 14.0 mm.; of elytra, 7.0 mm.; width, 4.3 mm. Length of pronotum, 3.0 mm.; width, 3.3 mm.

*Largest Female.* Total length, 17.0 mm.; of elytra, 10.0 mm.; width, 5.5 mm. Length of pronotum, 3.75 mm.; width, 4.2 mm.

Specimen Showing the Greatest Amount of Variation as Regards Elytral Sculpturing.

*Female.*—Total length, 14.5 mm.; of elytra, 8.1 mm.; width, 5.0 mm. Length of pronotum, 3.0 mm.; width, 3.2 mm. The setigerous punctures of the elytra are more noticeably impressed and subfoveate, eleven in number on each elytron and arranged in two rows. This specimen would without doubt be described as a new species if separated from the aggregate. As a control an abundance of intermediates are at hand.

In numerous specimens the setigerous punctures are not impressed and therefore not visible without a hand lens. The visible subfoveate punctures by no means represent all of the setigerous punctures, especially those of the humeral and apical regions.

In *cupreonitens* the mental tooth is recurved, narrow and deeply grooved, and variable as regards those characters. The largest female has the lateral bead of the pronotum meeting the basal bead and interrupting the basal sub-marginal groove so that it does not pass on to the basal border of the propleura.

In the smallest male the marginal bead does not join the basal bead and the submarginal groove at base passes continuously onto the basal border of the propleura. Similar inquiry into the variations of the other species shows the same variations in specimens caught in the same geographical area. The list includes *californicus, dejeani, sequoiarum, lecontei* and *ambiguus.*

VARIATIONS IN OMUS BLAISDELLI.

The male has the mental tooth subacute, surface plane, and recurved as usual. In the females the mental tooth is stouter, more rounded at apex and the surface is plane. Variation: tooth less recurved and distinctly truncate at apex. The lateral marginal bead of the pronotum joins the basal bead in all the specimens at hand.

MEASUREMENTS: *Smallest Male.* Total length, 16.0 mm.; elytra, 9.8 mm.; width, 4.8 mm. Pronotum.—Length, 3.2 mm.; width, 4.0 mm.

*Largest Male.* Total length, 18.0 mm.; elytra, 10.5 mm.; width, 6.0 mm. Pronotum—Length, 3.8 mm.; width, 4.1 mm.

*Smallest Female.* Total length, 19.0 mm.; elytra, 11.0 mm.; width, 5.5 mm. Pronotum—Length, 3.5 mm.; width, 4.5 mm.

*Largest Female.* Total length, 21.0 mm.; elytra, 12.0 mm.; width, 6.1 mm. Pronotum—Length, 4.0 mm.; width, 5.1 mm.

The above measurements have been made from specimens, selected from a series of twenty-two specimens that were collected on the same one-fourth acre of land (Davis Meadow, near Glencoe, Calaveras County, California) bordering a small meadow and sparsely covered by bull-pines. They were living absolutely under the same environment. Seven of the specimens have no humeri, and fifteen specimens have broadly rounded humeri. In the seven, the lateral elytral border passes directly and obliquely backward from the elytral base. One male has very nearly the form of *augusto-cylindricus,* and the elytra are just slightly wider than the pronotal base. The seven without humeri are undeniably like *intermedius.* Intermediates connect the two extremes. Such are the variations presented by a small series in which there can be no doubt of specific identity. No mention is made of a similar series taken two miles distant, for if the two series were mixed there might

be reasonable ground to argue that two different races or species were involved. Similar series of *edwardsii, sequoiarum, audouini, lecontei, humeroplanatus* and *cupreonitens* tell the same story. The extremes of a specific aggregate are heterotypes. The specific aggregate of *californicus* includes *vermiculatus* and *sculptilis,* as well as several intraspecific forms that have escaped description.

EXPLANATION OF PLATE VI.

*Omus cupreonitens* n. sp. Fig. 1, male type, humeri moderate and rounded; Fig. 2, female type, humeri broadly rounded; Fig. 3, male, an intraspecific variation, humeri obsolete; Fig. 4, an average female. Figs. 3 and 4 more highly magnified than Figs. 1 and 2.

## Entomology at the United States National Museum.*

By T. D. A. COCKERELL, Boulder, Colorado.

Several years ago, when going over the early correspondence of Spencer F. Baird at the Smithsonian Institution, I came across the following interesting letter, addressed to Dr. John L. LeConte, of Philadelphia:

November 20, '58.

DEAR JOHNNY:

You may as well return Vesey's bugs when done with, to be kept here with his other collections. I don't believe there is another specimen here which you have not seen from the western territories. I hope the new Entomological Circular we are about distributing will stir up the insects generally.

Yours ever,

S. F. BAIRD.

Vesey was John Xantus de Vesey, generally known in entomological literature as Xantus, who collected beetles, along with many other things, in Lower California. Dr. Horn (Proc. Calif. Acad. Sci., 1894) stated that the collections were made in 1859 and 1860, but we have evidence here that LeConte received specimens as early as 1858. Such species as *Cymatodera xanti* Horn and *Pachybrachys xanti* Crotch commemorate the Xantusian labors in this direction.

*Read at the meeting of the Entomological Society of America, New York, December 27, 1916.

Further contributions from the western territories were described by LeConte in 1859, in his work on "The Coleoptera of Kansas and Eastern New Mexico," published by the Smithsonian Institution. Even in these early days it was recognized that the detailed facts were to be used synthetically, and the paper just mentioned contains a colored plate, illustrating the Entomological Provinces of North America.

A Catalog of the described Coleoptera of the United States, prepared by Melsheimer, and revised by Haldeman and LeConte, was published by the Smithsonian Institution in 1853. A new edition, by LeConte, appeared in 1863.

Other activities could be mentioned, but the above will suffice to recall the beginnings of entomology in the National Museum. Following the custom of the Smithsonian Institution, which is continued to this day, co-operation with students and institutions in various parts of the country was sought, and the then small resources were made to go as far as possible.

Thirty years later than Baird's letter to LeConte, I was in active correspondence with the Washington entomologists, at that time under the leadership of C. V. Riley. I recall my amazement at the kindness shown to an unknown student in the far West, at the numerous and valuable publications sent out free of charge. The story of American economic entomology has been told by Dr. Howard and others. Much of it is fresh in the minds of most of us, and it is not necessary to go into details. The point we are interested in at this moment is, that the great development of the practical side of entomology led to a corresponding development of its purely scientific aspects, of insect biology and classification. The National Museum, securing the co-operation of the Department of Agriculture, and depending on the staff of that Department, was able to build up a collection of first-class importance. Up to the present moment this dependence has continued, and comparatively little of the entomological activity in the Museum is under the jurisdiction of and supported by the Museum proper. This is not a unique situation but represents a common trend in American scientific affairs. Thus in the Museum a

large part of the work on fossils and molluscs is done by officials of the U. S. Geological Survey; in the universities and schools researches are carried on by those who are primarily paid to teach. It is a wise policy to interpret the laws governing economic activities liberally, so as to include, or at least permit, work which, though not directly economic, forms the basis of the designated undertakings.

Having visited the National Museum at intervals, dating back to the time when entomology occupied cramped quarters in the building, I have witnessed with pleasure and admiration the great developments which have taken place. These developments, however, have tended to increasingly tax the resources of the institution, and to-day it is impossible to keep all the collections in good order and up to date. Many of the men are so keenly interested that they work overtime, far into the night or on holidays; but in the nature of the case it is impossible for them to keep pace with the accessions and the developments of the science in all its ramifications. Being nearly all employed ostensibly as economic workers, working for the Department of Agriculture, injurious insects and correspondence relative to them naturally take precedence, and more purely scientific activities tend to be crowded to the wall.

Fully recognizing the necessity and wisdom of the form of development which has brought the entomological division of the Museum up to its present high standard, I venture to suggest that we must in the future, perhaps in the near future, pass to another stage of departmental evolution. Ideally, the Museum has functions resembling those of a library in many respects. It is the business of the curators, first of all, to arrange and classify the collections, and make them available to those who can use them to advantage. The Department of Agriculture has long ago developed its library facilities, instead of depending on the various workers to do library work. Even the Bureaus have their libraries. It would be entirely to the advantage of the Bureau of Entomology to have the care of the entomological collections taken off its hands, and assumed by the Museum. It would be advantageous to the Museum,

from the standpoint of administration, to have control under a unified system. There is no possible reason why, under such an arrangement, the economic workers should not have the fullest use of the materials, whenever they required them, and the Museum would of course continue to profit enormously by the labors of the Bureau men.

Under Museum administration, every phase of the science would receive consideration, and each group of insects would have its own museum curator. Great developments would follow, which could not very well occur under economic auspices, stretching the law to the utmost. For example, the Museum is extremely deficient in exotic insects, especially those of the Old World. There are of course large exotic collections, notably the neotropical Lepidoptera donated by Schaus; but when we come to compare the exotic collections as a whole with those of the British Museum, the comparison is humiliating.

Without going into further details, I venture to suggest the appointment of a committee of this society to inquire into the subject and report a year hence. The first question is naturally that of ways and means. It would be necessary to secure a suitable grant from Congress, and in order to do that, entomologists would be called upon to press the matter in as many places and at as many times as opportunity offered. This they could or would only do if convinced of the importance and justice of their cause. It is easy to say that no museum, in any part of the world, has yet been able to deal thoroughly with its entomological materials. Even the British Museum has cabinets full of accessions, sorted only down to the major groups. Yet it seems reasonable to urge that in view of the great and increasing importance of entomology, and in view of the position of the United States in the world, we ought certainly to bring our national entomological collections up to a standard which will fairly correspond with our great resources and reputation for intelligence.

I have recently had occasion to review certain phases of English nineteenth century history. It is curious to read today the discussions over the problem of popular education, held

at a time when church schools were endeavoring to cope with the education of the masses, without even appreciating the magnitude of their task. If some of the really great and good men who opposed public education could now come to life in the United States, and see the vast expenditure of money on universities and schools of all grades, they would indeed be amazed. What we take now as a matter of course and of necessity, would then have seemed ultra-chimerical. So, I believe, the support given to science in future days will compare with what we now regard as large expenditures. With faith and imagination there is no telling what developments may be possible.

## Spiders in the Adirondacks (Araneina).

By J. H. Emerton, Boston, Mass.

In August last I joined a party of entomologists from Cornell University in an exploring visit to the neighborhood of Mt. Whiteface in the Adirondacks of northern New York. A large variety of entomological specialties were represented and three of us, Prof. C. R. Crosby, Mr. S. C. Bishop and the writer, devoted ourselves to spiders. The party assembled during August 20th at Wilmington, twelve miles northeast of Lake Placid, and began the sweeping of bushes and turning over logs around the village. The following day Prof. Crosby and I went to Wilmington Notch and spent the day sweeping the roadside and sifting the leaf mold in the maple woods at an elevation of 1600 feet. Most of the spiders found are known in other parts of the State and in Vermont and New Hampshire. Among them are the following: *Ceratinella laetabilis, atriceps* and *brunnea, Caseola herbicola, Lophocarenum simplex* and *longitarsus, Microneta viaria* and *cornupalpis, Diplostyla brevis, Bathyphantes zebra, Cicurina brevis* and *Cryphoeca montana.* In the bushes were *Theridion montanum* and *aurantium, Drapetisca socialis, Epeira angulata* and *corticaria, Hyptiotes cavatus.*

On the third day we went up Mt. Whiteface. The lower part of the mountain has been cut and burned and we did nothing until we reached the spruce forest at a height of 3000

feet, and here as in the White Mountains we found *Linyphia nearctica* on the small spruce and balsam trees and with it the more widely diffused *Theridion montanum,* and nearer the ground *Theridion sexpunctatum.* At about 4000 feet we spent much time sifting the moss which grows thickly on the decaying stumps, and the species here were the same as at a similar elevation in the White Mountains—*Theridion sexpunctatum, Pedanostethus fuscus, Lophocarenum castaneum, Lophocarenum (Tmeticus) armatus, Tmeticus montanus, bidentatus* and *truncatus, Amaurobius tibialis* and *Gnaphosa brumalis.* The rarer *Tmeticus microtarsus* and *Nematogmus drassoides* were also found. Above the trees at 4500 feet were *Pardosa uniata, muscicola* and *lutcola.* We camped two nights on the mountain and continued collecting near the summit and on the way down. Another day was spent at Wilmington along the lumber roads east of Mt. Whiteface, ascending gradually from 1000 feet at the village to 2500 feet in the undisturbed forest on the northern side of the mountain. The way passed first through open and partly cultivated country and here we found such familiar spiders as *Theridion differens* and *murarium, Linyphia phrygiana, marginata* and *variabilis, Helophora insignis, Pardosa tachypoda* and *Dendryphantes flavipedes.* In the clearing at the highest part of the road were *Theridion montanum, Linyphia nearctica, Diplostyla nigrina, Amaurobius borealis* and *Liocranum calcaratum.*

After leaving Wilmington we spent a day at Saranac on the boggy shores of one of the ponds. Here were *Epeira strix, corticaria* and *prompta,* the two species of *Argiope, Singa variabilis, Tetragnatha (Encta) caudata* and *Sittacus palustris.* The black and white bog variety of *Epeira labyrinthea* also occurred on low plants around the edge of the bog, several having, as in the bogs in Maine, large conical nests containing the cocoons of eggs. Throughout the trip search was made, in the small conifers, for *Theridion zelotypum,* which extends across Canada as far south as Sherbrooke and Ottawa, but it was not found. Altogether 110 species of spiders were collected, six of which need further study and may be described as new.

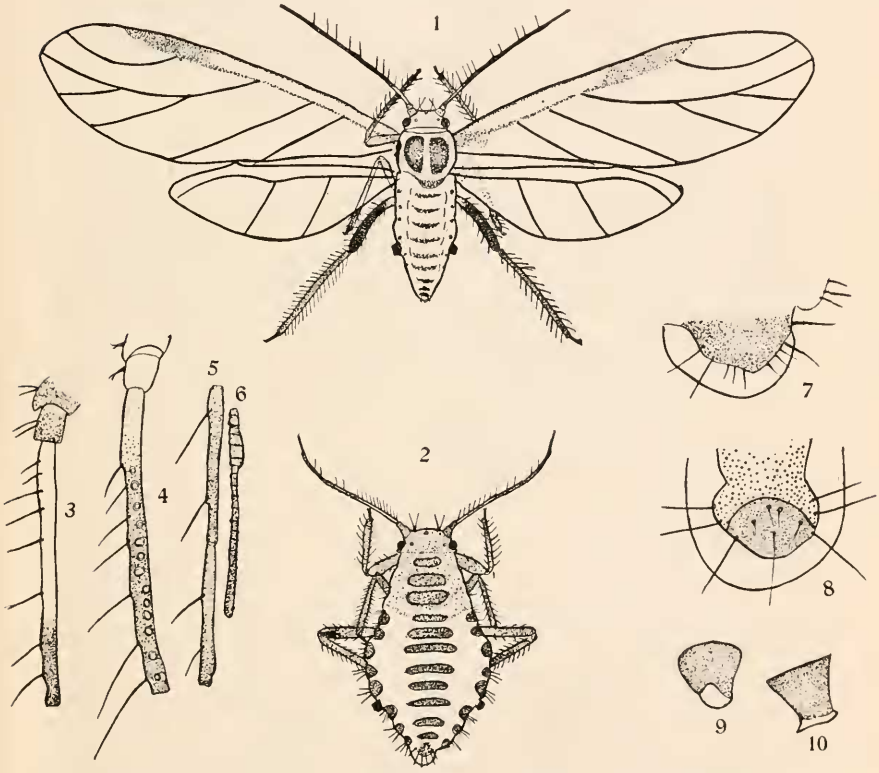
# New Aphids from California (Hem., Hom.).

By G. O. Shinji, Berkeley, California.

(Plate VII)

**Thomasia californiensis** n. sp.

*Alate viviparous female.*—General color orange to salmon-red. Length of body excluding style, 2.6 mm.; greatest width of abdomen, 1.2 mm. Wing expansion, 5 mm. Head broader than long, dusky. Eyes red, prominent. Beak short, dusky, not reaching the second coxa as in apterous forms. Antenna dusky except yellowish basal part of




Figs. 1-10, *Thomasia californiensis* n. sp. 1, winged viviparous female; 2, apterous viviparous female; 3, first, second and third joints of the antenna of apterous viviparous female; 4, 5, 6, the antennal joints of the adult alate viviparous female; 7, cauda of the apterous form; 8, cauda of the alate individual; 9, cornicle of the alate female; 10, cauda of the apterous viviparous female.

III, provided with rather few, but very long, bristle-like hairs; III with about 18 circular sensoria. Length of antennal joints: III, .6 mm.; IV, .5 mm.; V, .3 mm.; VI, .2 mm.; spur or filament, .4 mm. Prothorax wider than long, dusky. Meso- and metathorax also dusky. Middle and hind legs black except orange basal one-third of the femur. Basal one-half of femora and tibia of the front leg orange, the remaining part dusky. Length of femora: front, 1.3 mm.; middle, 1.1 mm.; hind, 1.7 mm. Abdomen of red-salmon color, with dark dorsal bands. Hairy throughout body. Cornicle black, wider at base than at apex. Style black with a few long hairs.

*Apterous viviparous female.*—General color salmon-red to orange. Length of body, 2.8 mm. Greatest width of abdomen, 1.6 mm. Head the color of body, broader than long. Beak beyond the second coxal cavity, tip dusky, remaining part salmon-red. Antenna shorter than body; article III, salmon-red, provided with bristle-like hairs on a row facing outside; IV and V, mostly dusky, but with a smaller number of bristles each; VI, including filament, dusky. Length of antennal joints: III, .7 mm.; IV, .4 mm.; V, .3 mm.; VI, .2 mm.; filament, .4 mm. Prothorax slightly dusky, wider than broad. Meso- and metathorax also slightly dusky. Abdomen salmon-red, with a black, transverse band on each of the segments. Cornicles black, base decidedly wider than at the apex. Style dusky, somewhat rounded and provided with hairs. Legs slightly dusky, except at the joints.

Host plant—*Acer macrophylla.*

Locality—University of California campus, Berkeley, California.

Date of Collection—April 5, 1915.

*Types* at the University of California.

**Myzocalis essigi** n. sp.

*Alate viviparous female.* General color pale. Length of body, exclusive of style, 1.65 mm. Greatest width of abdomen .65 mm. Wing expansion 2.3 mm. Head broader than long, pale, width between the eyes .25 mm. Tip of beak slightly dusky. Antenna pale except at the joints of III, IV, V and most of VI including spur which are dusky. Length of antennal joints: III .6 mm, IV .4 mm, V .3 mm, VI .2 mm, filament .19 mm. Article III with 6 to 7 circular sensoria. Prothorax pale, .5 mm. long and .32 mm. wide. Mesothorax pale, width .55 mm. Metathorax also pale. Legs pale except dusky tarsi with claws. Abdomen pale with 4 large, long, blunt tubercles on first and second segments. Cornicles black, somewhat constricted near the middle. Style distinctly constricted, pale. Anal plate deeply and beautifully bifurcated, pale. Wings hyaline.

*Nymphs* are beautifully shaded with green and pale.

Locality—University of California campus. Berkeley, California. Date of collection, April 5, 1915, and also June 15, 1916. Host plant—*Quercus* sp.

Note.—Absence of any dusky spots about the thorax and dusky color of the cornicle distinguish this species from its relatives, such as *M. discolor, M. bellus, M. quercifolia* and others.

This species is named after Professor Essig, who has encouraged and in many ways helped the writer in the study of this group of insects.

**Myzocalis woodworthi** n. sp. (Plate VII).

*Alate viviparous female.* General color light green. Length of body excluding cauda 1.2 mm. Greatest width of abdomen .5 mm. Wing expansion 3.1 mm. Head broader than long, width, including eyes, .35 mm., pale. Tip of beak slightly dusky. Antenna dusky. Length of articles: III .55 mm., IV .4 mm., V .3 mm., VI .2 mm., spur, 2 mm. Number of sensoria on antennal joints: III, 28; IV, 14; V, 12; VI, 4. Prothorax nearly as wide as head, width, .5 mm., length, .3 mm., pale. Meso- and metathorax pale with muscle lobes amber. Mesothorax with a pair of large spines. Width of mesothorax .4 mm. Femora and tibia pale, tarsi dusky. Abdomen pale, with dusky dorsal bands. Bands or markings of this species fade somewhat in mounted specimens. Dorsal tubercles on the first and second abdominal segments present as in *M. essigi.* Cornicles dusky, about .13 mm. long. Style constricted at base. Anal plate distinctly and deeply bifurcated.

*Nymphs* with checkered dorsal marking on the abdomen as in *M. essigi, M. maurei* and *M. passani.*

Locality—University of California campus, Berkeley, California. Date of collection—June 20, 1916. Host plant—*Quercus* sp.

This beautiful aphid is named in honor of Professor Woodworth, of the University of California, with whom the writer has enjoyed studying for more than eight college years.

What seems to me *M. hyalinus* Mon. has been recently collected by the writer in this locality, although the spur is almost subequal to the base; it may be a local variation. The writer has never had an opportunity of seeing any true form of *M. hyalinus.* This species agrees with Monell's description in several points.

**Myzocalis hyalinus** Mon. (?).

*Alate viviparous female.* General color pale. Length of body exclusive of style 3.2 mm. Wing expansion 3.5 mm. Head pale, width between the eyes .3 mm. Eyes prominent, black. Beak short, tip slightly dusky and lying between the first and the second coxa. Antenna pale except dusky rings near the joints of III, IV, V and VI including spur. Article III provided with about 6 large circular sensoria near the base. Prothorax pale, smallest width .4 mm., greatest width, which is nearer to mesothorax, .7 mm., length .4 mm. Mesothorax pale, with muscle lobes orange; width, .95 mm. Legs with dusky spot at the base of tibia, tarsi dusky, rest pale. Abdomen pale, very much inflated. Cornicles pale, slightly longer than wide at base, somewhat constricted at middle, length about .1 mm. Style pale, tip rounded, with spines about .25 mm. long. Anal plate pale, deeply bilobed, provided with long spines.

*Nymphs.*—As far as the writer's observations go, nymphs of this species were not shaded with green as in the case of related species.

Locality—University of California campus, Berkeley, California. Latest date of collection—July 28, 1916. Host—*Quercus* sp.

The writer has had opportunities to examine several hundreds of Aphid species, but never observed such a numerical variation as presented in this species. The following measurements obtained with specimens collected on the same day at one and the same niche will illustrate this statement:

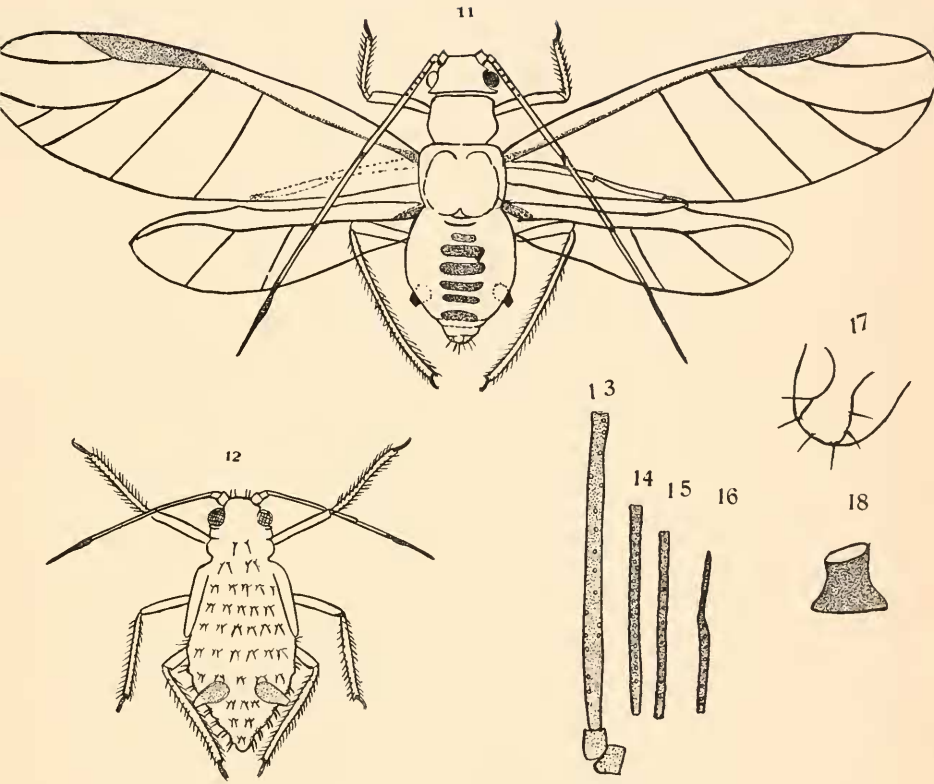
*Numerical variation in M. hyalinus Mon. in millimeters.*

| Specimen | No. 1 | No. 2 | No. 3 | No. 4 |
|---|---|---|---|---|
| Length of body including style.... | 3.7 | 2.9 | 2.4 | 1.75 |
| Width of abdomen ..... | 1.4 | 1.3 | .9 | .8 |
| Wing expansion ..... | 3.5 | 3.6 | 3.2 | 3.5 |
| Length of antennal joint III..... | .95 | .9 | 1. | .8 |
| Length of antennal joint IV..... | .7 | .9 | .8 | .6 |
| Length of antennal joint V..... | .6 | .75 | .6 | .5 |
| Length of antennal joint VI..... | .27 | .35 | .25 | .29 |
| Filament ..... | .27 | .40 | .25 | .23 |

Thus in my specimen the spur is not absolutely longer than the base. I am not as yet sure whether this is true *hyalinus* Monell or not.

Explanation of Plate VII.

Figs. 11 to 18, *Myzocalis woodworthi* n. sp. 11, Alate viviparous female; 12, nymph; 13 to 16, the antennal articles of the alate viviparous female; 17, cauda, 18, cornicle of the alate viviparous female.




MYZOCALIS WOODWORTHI—SHINJI.